UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/658,511	09/09/2003	John C. Dunn	13768.434	1779

			EXAMINER

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EXAMINER
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ART UNIT	PAPER NUMBER
2182	

DATE MAILED: 03/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No.	Applicant(s)
Office Action Summary	10/658,511	DUNN ET AL.
	Examiner	Art Unit
	Scott Sun	2182

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>09 September 2003</u>.

2a)☐ This action is **FINAL**.　　　　2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-28</u> is/are pending in the application.

　　4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-28</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>09 September 2003</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.

　　Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

　　Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

　　a)☐ All　b)☐ Some * c)☐ None of:

　　1.☐ Certified copies of the priority documents have been received.

　　2.☐ Certified copies of the priority documents have been received in Application No. _____.

　　3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

　　* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>9/9/2003</u>.

4)☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

Claim Objections

1.   Claims 10 and 23 are objected to because of the following informalities: "one or

more of one or more of" is recited where "one or more" is expected. Appropriate

correction is required.

Claim Rejections - 35 USC § 101

2.   35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of
> matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the
> conditions and requirements of this title.

Claims 16-28 are rejected under 35 U.S.C. 101 because the claimed invention is

directed to non-statutory subject matter. In particular, the above claims recite "computer

program product" which includes non-statutory subject matter of carrier waves

(paragraph 23). Examiner notes that the transfer of data over communication

connections that applicant includes as computer readable medium is presumably by

carrier waves. Examiner further suggests amending the claim limitation to "computer

readable storage medium".

3.   To expedite a complete examination of the instant application, the claim(s)

rejected under 35 USC 101 (nonstatutory) above are further rejected as set forth below

in anticipation of applicant amending these claims to place them within the four statutory

categories of invention.

Claim Rejections - 35 USC § 112

4.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly
> claiming the subject matter which the applicant regards as his invention.

5.   Claim 2 and 3 are rejected under 35 U.S.C. 112, second paragraph, as being

indefinite for failing to particularly point out and distinctly claim the subject matter which

applicant regards as the invention.

6.   Regarding claim 2, "wireless device" lacks antecedent basis in the specification

to allow a proper determination of the scope intended by applicant. Examiner notes that

wireless devices can include game controllers, keyboards, mice, and PDAs. However,

the claim structure implies wireless devices are distinct from these devices.

        A broad range or limitation together with a narrow range or limitation that falls

within the broad range or limitation (in the same claim) is considered indefinite, since

the resulting claim does not clearly set forth the metes and bounds of the patent

protection desired. See MPEP § 2173.05(c). Note the explanation given by the Board

of Patent Appeals and Interferences in *Ex parte Wu*, 10 USPQ2d 2031, 2033 (Bd. Pat.

App. & Inter. 1989), as to where broad language is followed by "such as" and then

narrow language. The Board stated that this can render a claim indefinite by raising a

question or doubt as to whether the feature introduced by such language is (a) merely

exemplary of the remainder of the claim, and therefore not required, or (b) a required

feature of the claims. Note also, for example, the decisions of *Ex parte Steigewald*, 131

USPQ 74 (Bd. App. 1961); *Ex parte Hall*, 83 USPQ 38 (Bd. App. 1948); and *Ex parte*

Hasche, 86 USPQ 481 (Bd. App. 1949). In the present instance, claim 2 recites the

broad recitation "wireless device", and the claim also recites "a personal device

assistant", "game controller", "keyboard", and "mouse" which are the narrower

statements of the range/limitation.

7.   Claim 3 contains the trademark/trade names USB™, Ethernet™, Bluetooth™,

and HID™. Where a trademark or trade name is used in a claim as a limitation to

identify or describe a particular material or product, the claim does not comply with the

requirements of 35 U.S.C. 112, second paragraph. See *Ex parte Simpson*, 218 USPQ

1020 (Bd. App. 1982). The claim scope is uncertain since the trademark or trade name

cannot be used properly to identify any particular material or product. A trademark or

trade name is used to identify a source of goods, and not the goods themselves. Thus,

a trademark or trade name does not identify or describe the goods associated with the

trademark or trade name. In the present case, the trademark/trade name is used to

identify/describe "the peripheral device" and, accordingly, the identification/description is

indefinite.

Claim Rejections - 35 USC § 103

8.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9.   Claims 1-12, 14-25, 27, 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over applicant's admitted prior art in view of Foster et al (US Patent #6,654,835) and Hoskins (US Patent #6,892,250).

10.   Regarding claim 1, applicant's admitted prior art discloses in a computerized environment (figure 1, background) including a host computer (host 100) having a host controller (110), a client driver (120), and a peripheral device (105) for transmitting one or more data packets to the client driver through a protocol stack (USB stack 130), a method comprising the following: at a client module (client driver 120), an act of initiating a data transfer request (request 140) that will be sent to a peripheral device (105), the data transfer request including data request instructions (paragraph 6, 7); an act of sending the data transfer request through a protocol stack (USB stack 130, paragraph 6), an act of receiving requested data from the peripheral device (paragraph 8).

Applicant's admitted prior art does not teach using a buffer. However, Foster teaches an act of allocating a buffer that corresponds to a data transfer request (buffer 218, figure 2), wherein the data transfer request is mapped to the allocated buffer (column 5, lines 29-44), an act of sending a signal (request/acknowledge) to a client module that the allocated buffer has been filled (column 6, line 64 – column 6, line 2). Teachings of applicant's admitted prior art and Foster are from the same field of data transfer controls.

Therefore, it would have been obvious at the time of invention for a person of ordinary skill in the art to combine teachings of Foster with applicant's admitted prior art by using a buffer in the system of applicant's admitted prior art for the benefit of matching transfer speed between different clock domains.

Further regarding claim 1, Foster combined with applicant's admitted prior art does not teach a scheduler. However, Hoskins teaches data request instructions are inserted into a schedule (queues) at a host controller (microprocessor; column 1, lines 15-24), an act of deactivating (insertion into free-list queue) the data request instructions (command node) in the host controller schedule, wherein the deactivated data request instructions do not need to be removed from the host controller schedule (column 13, line 64 – column 14, line 11). Examiner notes that the queues hold the commands being processed by the microprocessor, and accordingly the movement of commands from one queue to another still keeps the command in the schedule. Teachings of Hoskins, Foster, and applicant's admitted prior art are from the same field of data transfer control.

Therefore, it would have been obvious at the time of invention for a person of ordinary skill in the art to combine teachings of Foster and applicant's admitted prior art and further with teachings of Hoskins by using a scheduler and corresponding command queues in the combined system of Foster and applicant's admitted prior art for the benefit of command optimization (background, Hoskins).

11.   Regarding claim 2, Hoskins, Foster, and applicant's admitted prior art combined disclose claim 1, and applicant's admitted prior further discloses wherein the peripheral

device is one or more of a game controller, a personal digital assistant, a wireless

device, a keyboard, and a mouse (paragraph 2).

12.   Regarding claim 3, Hoskins, Foster, and applicant's admitted prior art combined

disclose claim 1, and applicant's admitted prior art further discloses wherein the

peripheral device communicates over one or more of a USB, Ethernet, Bluetooth, and

HID communication protocol (paragraph 3).

13.   Regarding claim 4, Hoskins, Foster, and applicant's admitted prior art combined

disclose claim 1, and Foster further discloses locking the allocated buffer into physical

memory (column 5, lines 29-31, 62-64; column 6, line 56-59). Examiner notes that the

buffer is set as a 16-byte memory.

14.   Regarding claim 5, Hoskins, Foster, and applicant's admitted prior art combined

disclose claim 4, and Foster further discloses removing the request data from the

allocated buffer, and sending a signal that the buffer is available to be filled again

(column 6, lines 2-12).

15.   Regarding claim 6, Hoskins, Foster, and applicant's admitted prior art combined

disclose claim 5, and Foster further discloses wherein a client module (DMA controller)

removes the requested data from the allocated buffer (column 6, lines 2-12). Examiner

notes that Foster teaches transferring data between a peripheral and a host system

(figure 2). In combing teachings of Foster, Hoskins, and applicant's admitted prior art,

one of ordinary skill in the art would readily recognize that because the client module

requested the data, it would remove the requested data once it has been signaled that

the buffer is filled with the requested data.

16.   Regarding claim 7, Hoskins, Foster, and applicant's admitted prior art combined disclose claim 5, and applicant's admitted prior art further discloses wherein the client module is one or more of a client driver (paragraph 6) and an application program, and wherein the client module includes specific information about the peripheral device. Examiner notes that by definition of drivers, it contains specific information about the peripheral device it is communicating with.

17.   Regarding claim 8, Hoskins, Foster, and applicant's admitted prior art combined disclose claim 5, and Foster further discloses sending a signal to the host controller that the allocated buffer is available to be filled again (column 7, line 55 – column 8, line 5).

18.   Regarding claim 9, Hoskins, Foster, and applicant's admitted prior art combined disclose claim 1, and Hoskins further discloses wherein the signal to the host controller that the allocate buffer is available to be filled again further comprises a signal to activate the data request instructions in the host controller schedule, such that a new data request instructions do not need to be inserted into the host controller schedule for a new data request (column 12, lines 8-27, column 14, lines 3-8). Examiner notes that Hoskins teaches moving instructions (commands) into different queues in the schedule depending on their status, allowing commands to be recycled for further use by the processor.

19.   Regarding claim 10, Hoskins, Foster, and applicant's admitted prior art combined disclose claim 1, and applicant's admitted prior art further discloses one or more of software layers in the protocol stack (modules 135) perform the acts of allocating the corresponding buffer, mapping the buffer to the data transfer request, and inserting the

data request instructions in the host controller schedule (paragraph 6). Examiner notes

that prior art teaches protocol stack process different aspects of the request through

different modules. Therefore, the combination of the various actions, including those

taught by Foster and Hoskins, would be performed by protocol stack.

20.   Regarding claim 11, Hoskins, Foster, and applicant's admitted prior art combined

disclose claim 1, and applicant's admitted prior art further discloses one or more other

data transfer requests packaged as a single data transfer request (figure 1). Examiner

notes that these features are part of the protocol defined by USB.

21.   Regarding claim 12, Hoskins, Foster, and applicant's admitted prior art combined

disclose claim 1, and applicant's admitted prior art further discloses wherein the data

request instructions comprise one or more transfer descriptors that provide instructions

corresponding to the data transfer request and each of the one or more other data

transfer requests packaged as a single data transfer request (paragraph 6). Examiner

notes that these features are part of the protocol defined by USB. For more detail, see

a USB specification readily available on the Internet, specifically bulk transfers.

22.   Claims 14-25, 27, 28 are substantially similar to the above rejected claims. The

same arguments are applied.

23.   Claims 13, 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over

applicant's admitted prior art in view of Foster and Hoskins, and further in view of Parry

et al (US Patent #6,378,035 – IDS filed 9/9/2003).

24.   Hoskins, Foster, and applicant's admitted prior art combined disclose claim 1 and

14, but does not disclose explicitly using a ring buffer. However, Parry discloses using

a ring buffer comprising one or more buffer regions that correspond to a data transfer

request and one or more other data transfer requests (figure 7; column 8, lines 9-62).

Teachings of Parry, Hoskins, Foster, and applicant's admitted prior art are from the

same field of data transfer control.

Therefore, it would have been obvious for a person or ordinary skill in the art at

the time of invention to combine teachings of Parry, Hoskins, Foster, and applicant's

admitted prior art by using a circular buffer (ring buffer) in the combined system for the

benefit supporting multiple readers modules and avoiding fill up of buffer with time-

shifted data during "replay" or "pause" in case of multimedia use (column 8, lines 24-27;

lines 33-40).

Conclusion

25.   Other publications are cited to further show the state of the art with respect to

control of data transfers. Refer to form 892, "Notice of References Cited", for a

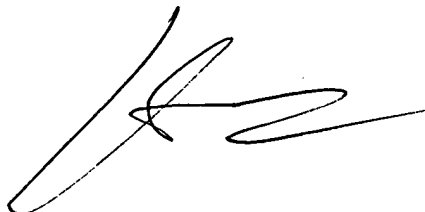complete list of relevant prior arts cited by the examiner.

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Scott Sun whose telephone number is (571) 272-2675.

The examiner can normally be reached on M-F, 10:30am-7pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Kim N. Huynh can be reached on (571) 272-4147. The fax phone number

for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

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Business Center (EBC) at 866-217-9197 (toll-free).

SS

KIM HUYNH
SUPERVISORY PATENT EXAMINER
3/20/06